Fig. 1

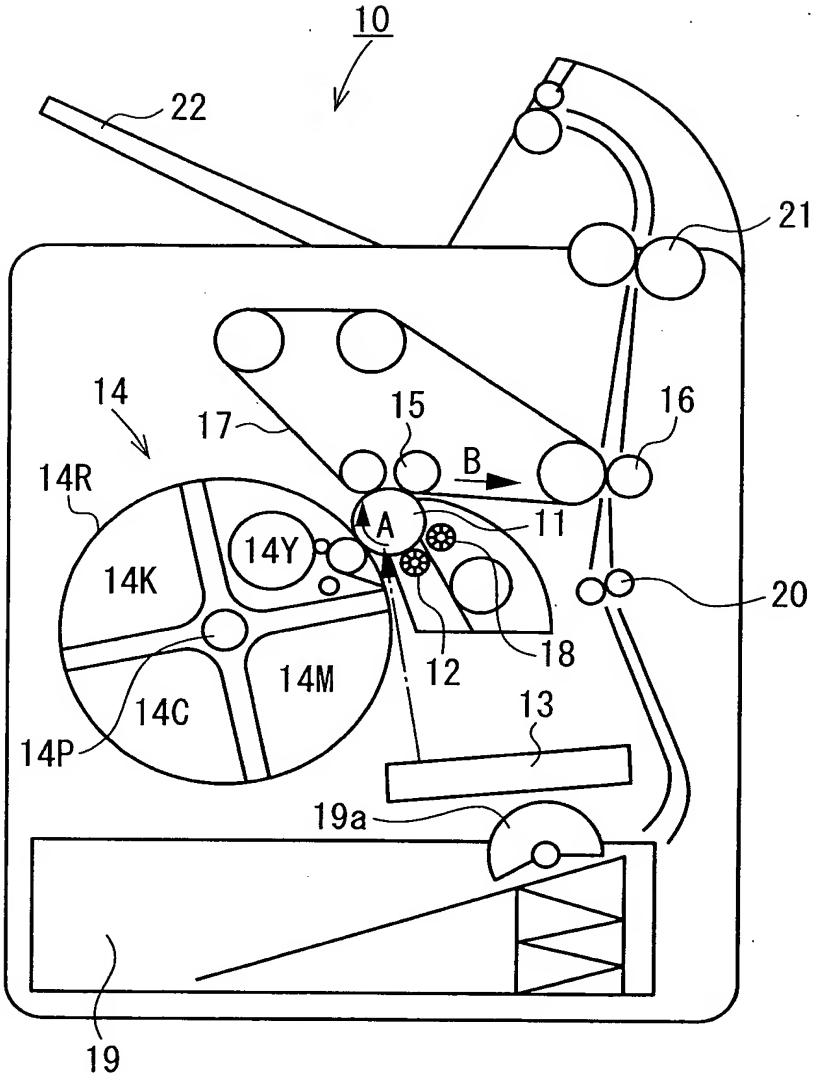

Fig. 2

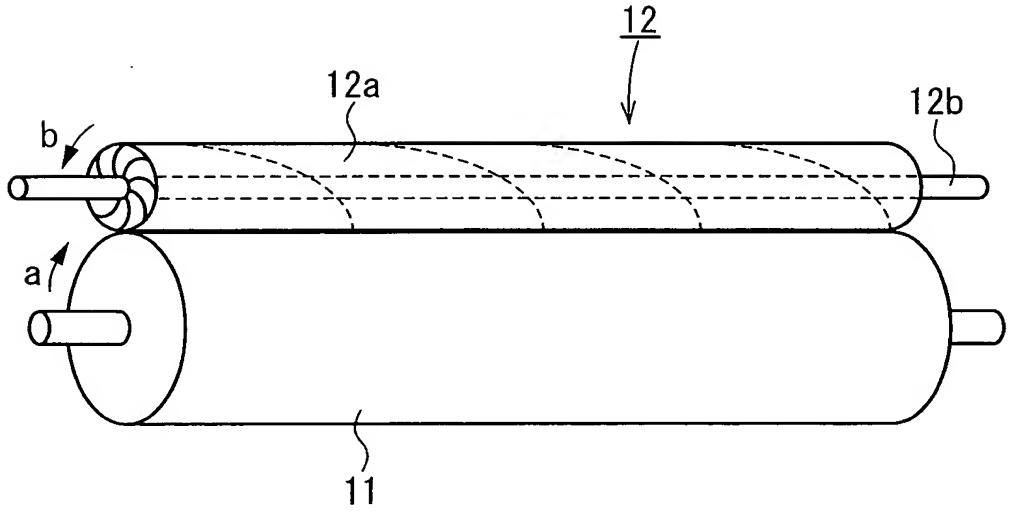

Fig. 3(a)

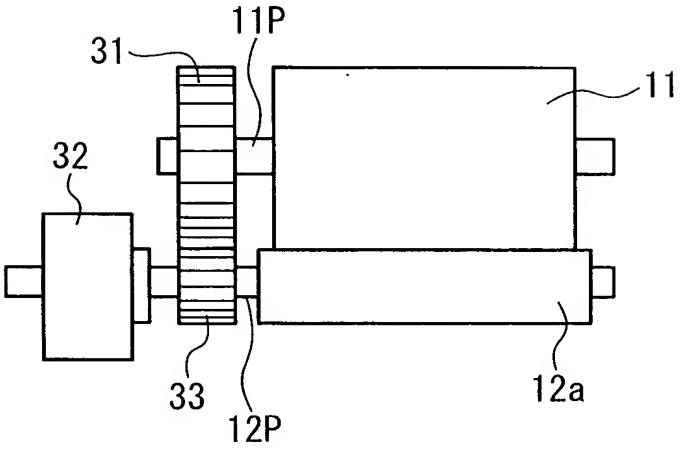

Fig. 3(b)

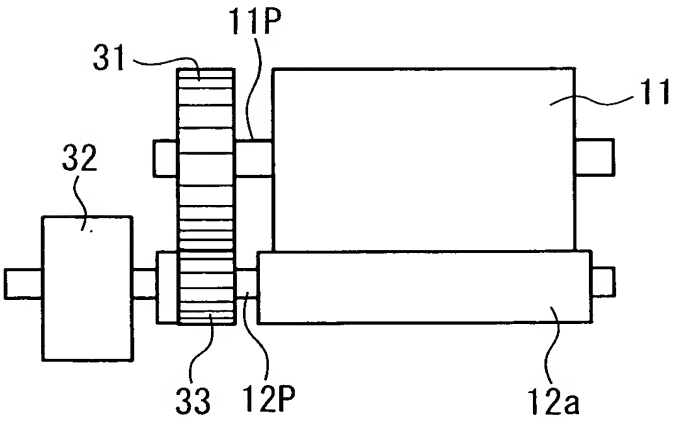

Fig. 4

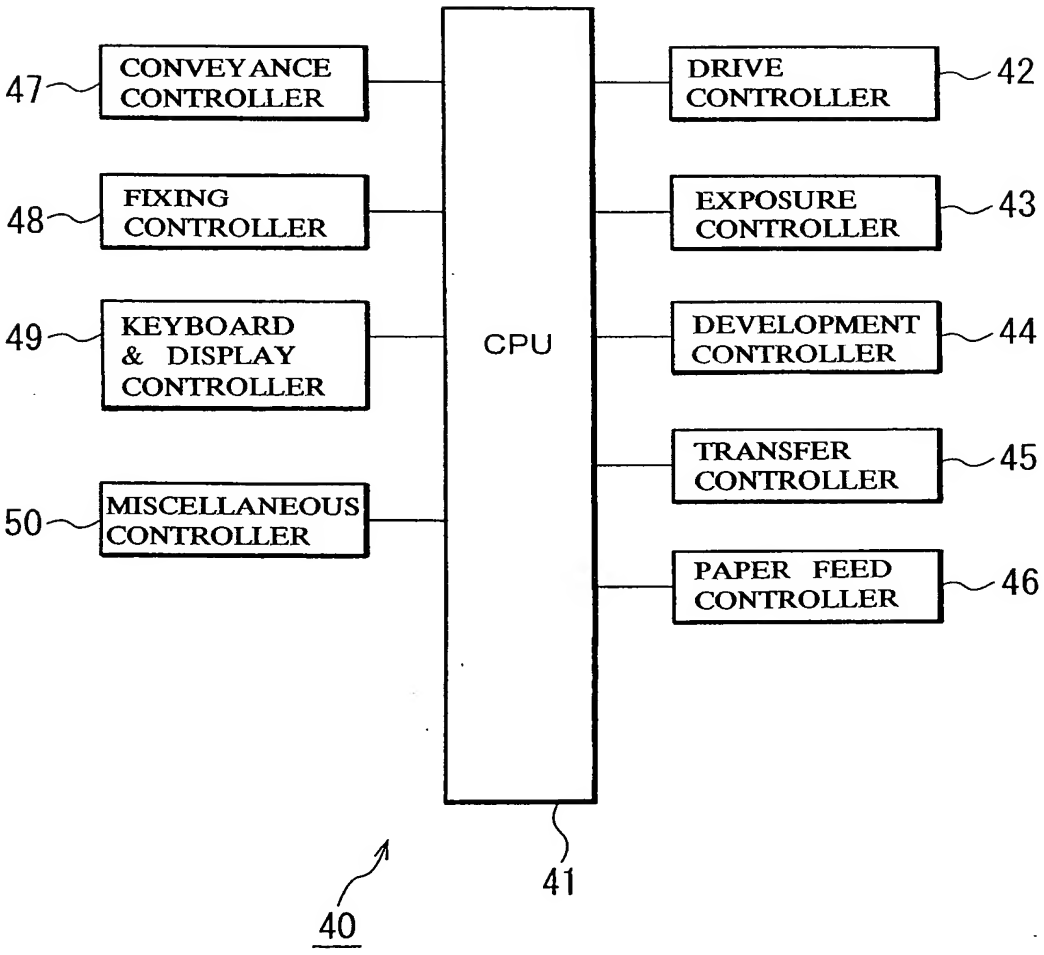
47
CONVEYANCE CONTROLLER
48
FIXING CONTROLLER
49
KEYBOARD & DISPLAY CONTROLLER
50
MISCELLANEOUS CONTROLLER
CPU
DRIVE CONTROLLER
42
EXPOSURE CONTROLLER
43
DEVELOPMENT CONTROLLER
44
TRANSFER CONTROLLER
45
PAPER FEED CONTROLLER
46
41
40

Fig. 5

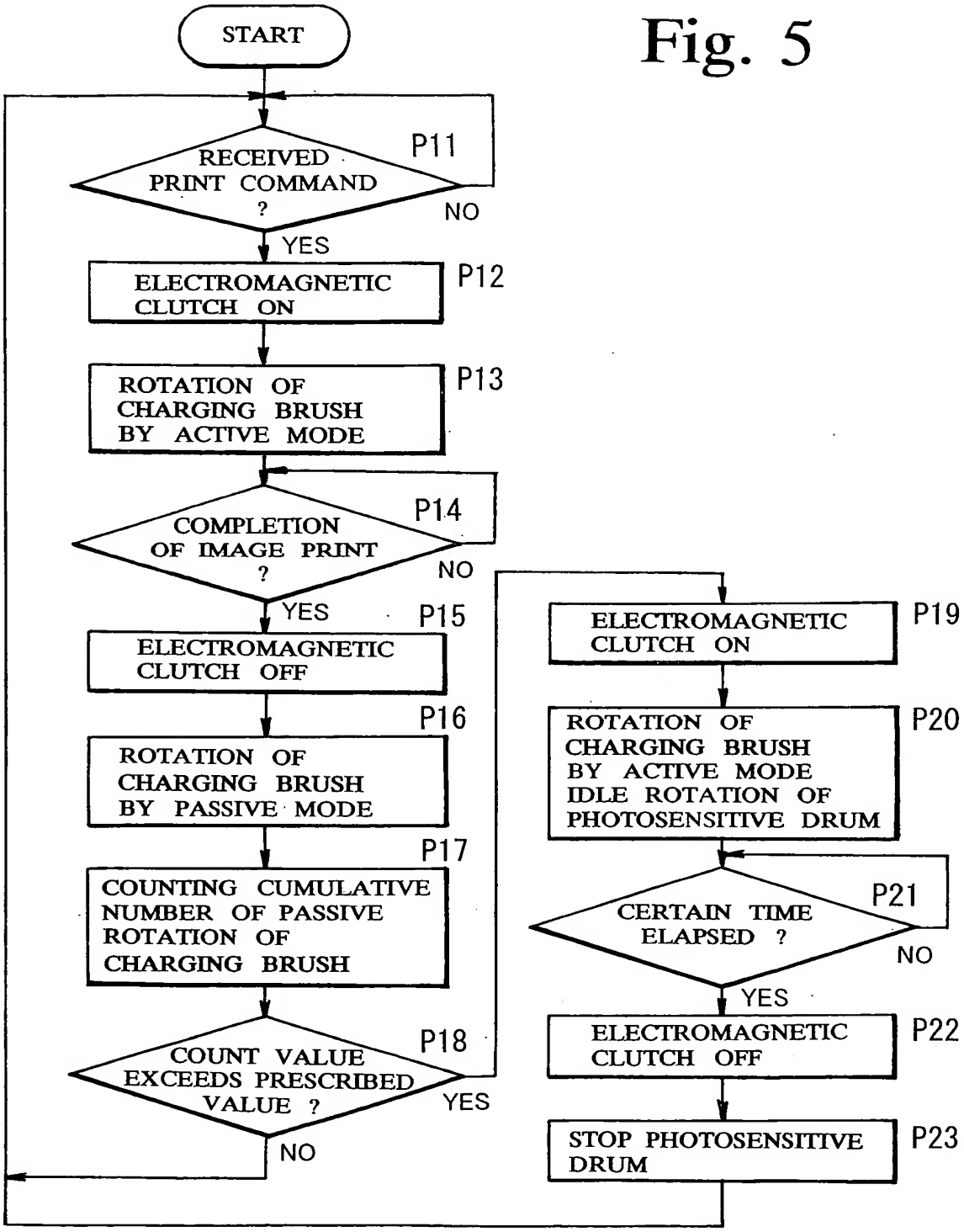
START
RECEIVED PRINT COMMAND ?
P11
NO
YES
ELECTROMAGNETIC CLUTCH ON
P12
ROTATION OF CHARGING BRUSH BY ACTIVE MODE
P13
COMPLETION OF IMAGE PRINT ?
P14
NO
YES
ELECTROMAGNETIC CLUTCH OFF
P15
ROTATION OF CHARGING BRUSH BY PASSIVE MODE
P16
COUNTING CUMULATIVE NUMBER OF PASSIVE ROTATION OF CHARGING BRUSH
P17
COUNT VALUE EXCEEDS PRESCRIBED VALUE ?
P18
YES
NO
ELECTROMAGNETIC CLUTCH ON
P19
ROTATION OF CHARGING BRUSH BY ACTIVE MODE IDLE ROTATION OF PHOTOSENSITIVE DRUM
P20
CERTAIN TIME ELAPSED ?
P21
NO
YES
ELECTROMAGNETIC CLUTCH OFF
P22
STOP PHOTOSENSITIVE DRUM
P23

Fig. 6

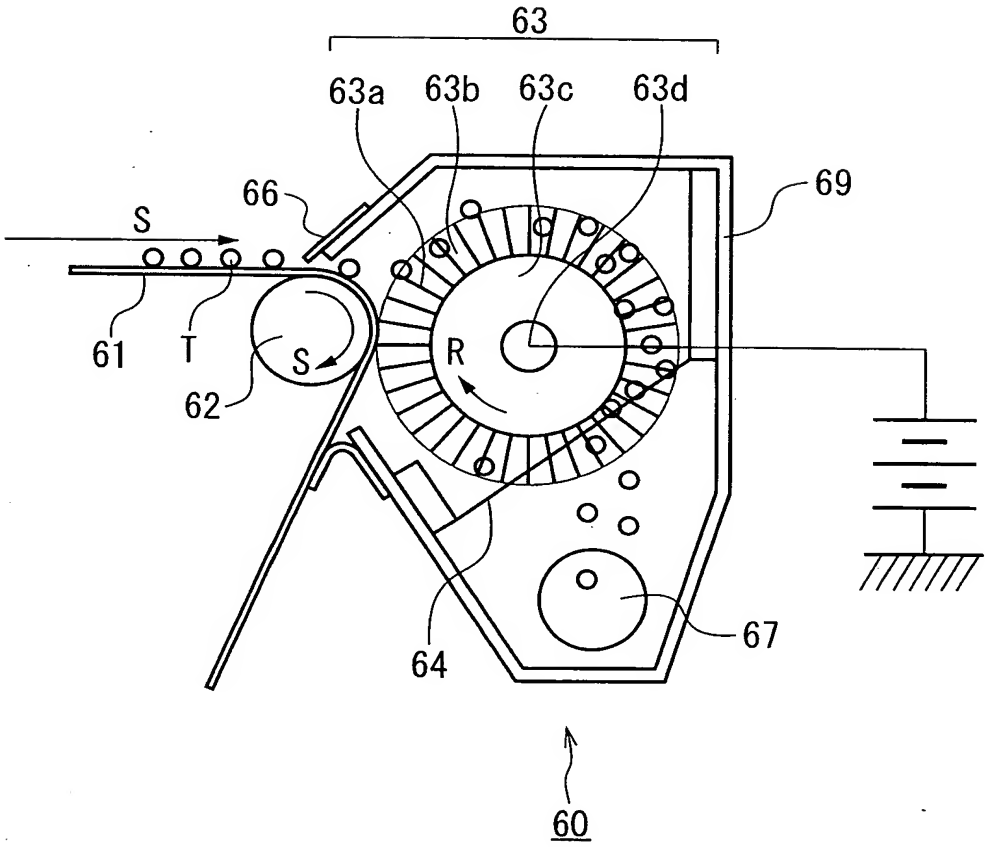

Fig. 7

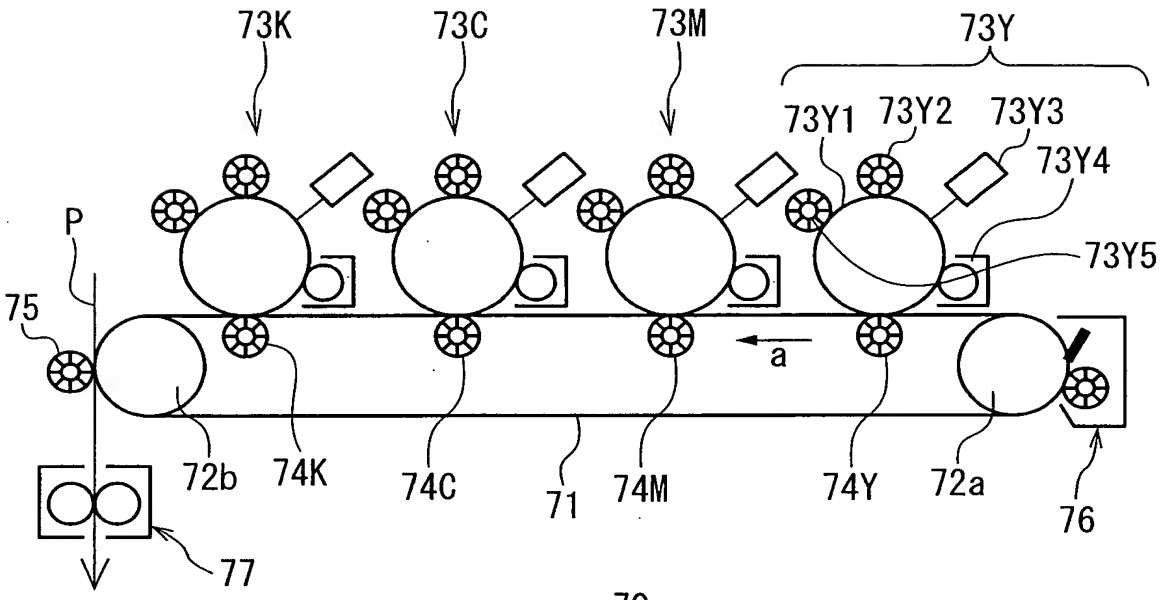
73K
73C
73M
73Y
73Y1
73Y2
73Y3
73Y4
73Y5
P
75
a
72b
74K
74C
71
74M
74Y
72a
76
77
70

Fig. 8

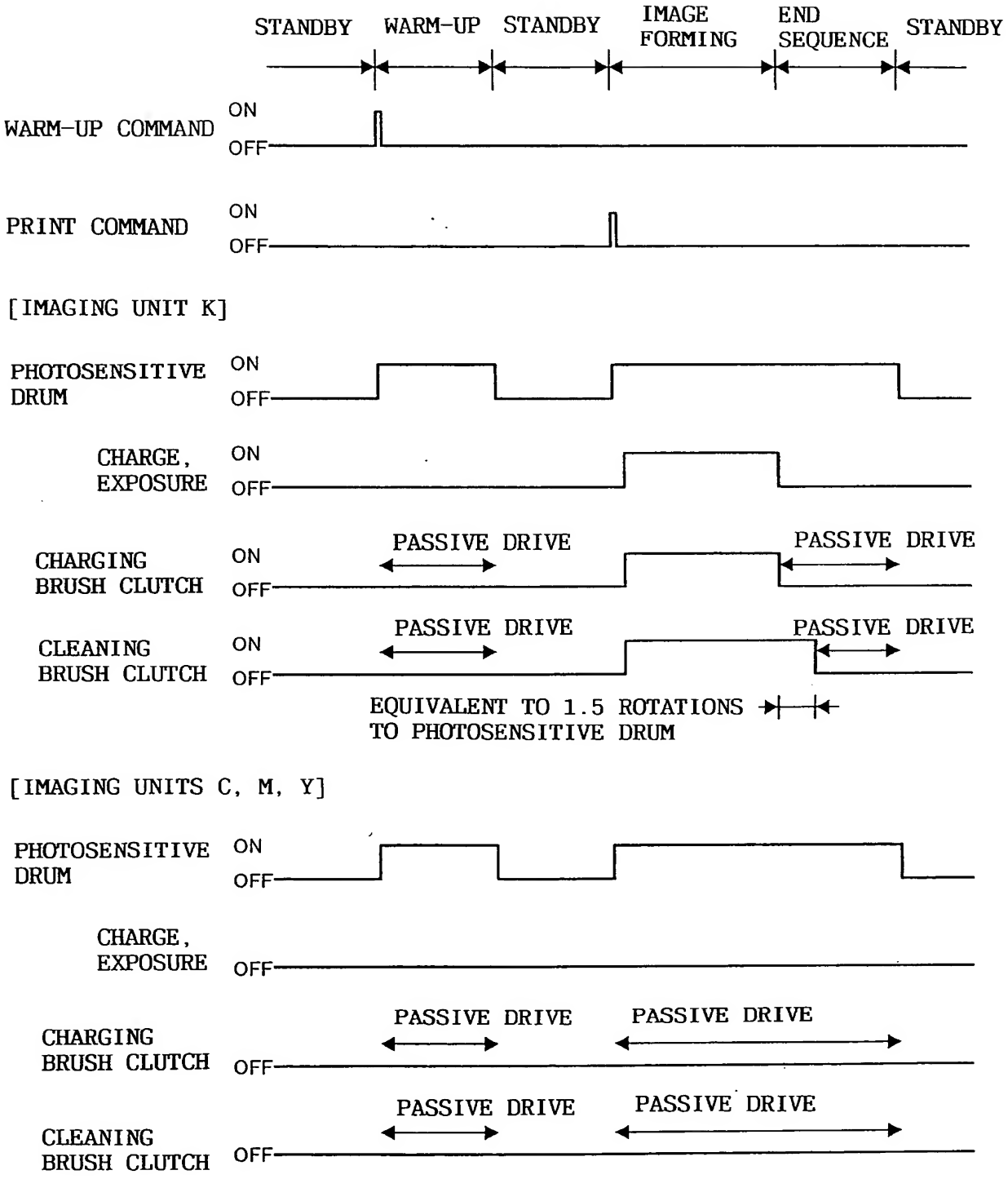
STANDBY
WARM-UP
STANDBY
IMAGE FORMING
END SEQUENCE
STANDBY
WARM-UP COMMAND
ON
OFF
PRINT COMMAND
ON
OFF
[IMAGING UNIT K]
PHOTOSENSITIVE DRUM
ON
OFF
CHARGE, EXPOSURE
ON
OFF
CHARGING BRUSH CLUTCH
ON
OFF
PASSIVE DRIVE
PASSIVE DRIVE
CLEANING BRUSH CLUTCH
ON
OFF
PASSIVE DRIVE
PASSIVE DRIVE
EQUIVALENT TO 1.5 ROTATIONS TO PHOTOSENSITIVE DRUM
[IMAGING UNITS C, M, Y]
PHOTOSENSITIVE DRUM
ON
OFF
CHARGE, EXPOSURE
OFF
CHARGING BRUSH CLUTCH
OFF
PASSIVE DRIVE
PASSIVE DRIVE
CLEANING BRUSH CLUTCH
OFF
PASSIVE DRIVE
PASSIVE DRIVE

Fig. 9

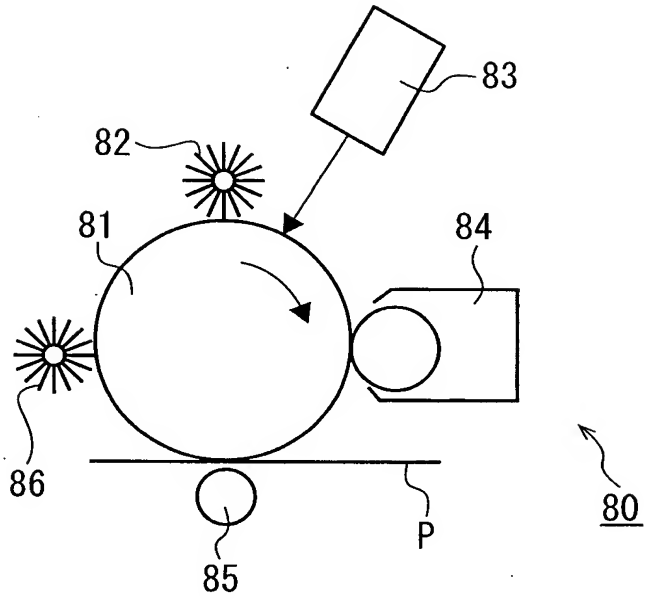

Fig. 10(a)

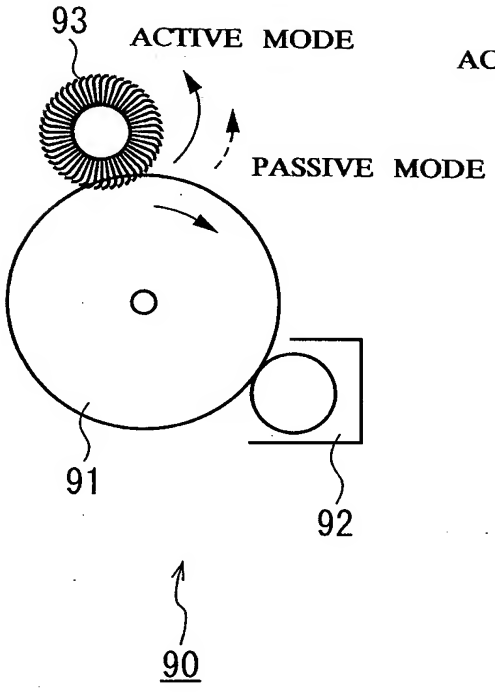

Fig. 10(b)

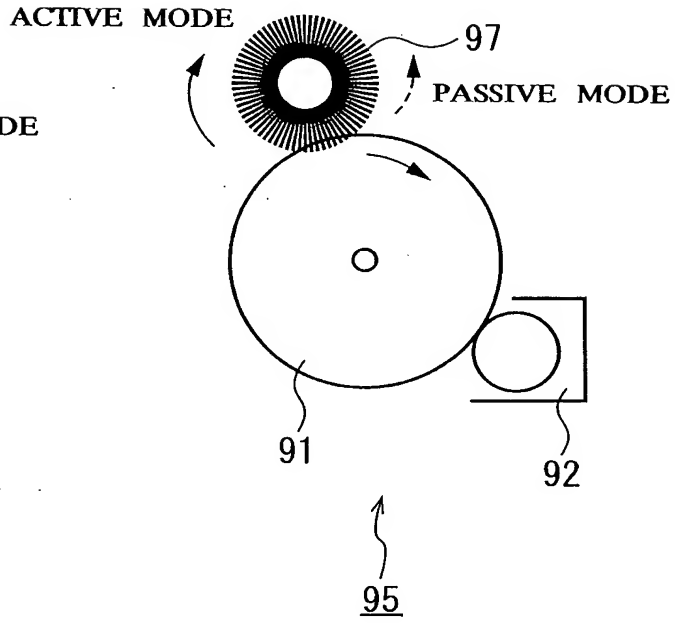

Fig. 11

	A	B	C
FIBER PLANTING DENSITY F/25.4mm^2	30K–500K	50K–500K	30K–100K
FIBER FINENESS D	2D–10D	2D–6D	4D–10D
FIBER LENGTH	3mm–7mm		

Fig. 12

EXPERIMENT I (Electrifying Brush – Photosensitive Drum)

	Passive/Active Rotation Mode Switching	Amount of Push p [Nip width n]	Drum Drive Time(s) [Number of Rotation(n)] Before Forced Rotation of Brush	Voltage Application in Passive Rotation	Degree of Abrasion (μm)	Disorder of Brush Fiber	Image Unevenness	Over all Evaluation
Sample 11	YES	0.5mm (4.9mm)	240(s) about 1100(n)	YES	0.9	◎	◎	◎
Sample 12	YES	0.08mm (2.0mm)	240(s) about 1000(n)	NO	1.9	○	○	△
Sample 13	YES	0.5mm (4.9mm)	240(s) about 1100(n)	NO	1.3	◎	◎	◎
Sample 14	YES	2.0mm (9.2mm)	240(s) about 1400(n)	NO	2.0	◎	◎	◎
Sample 15	YES	0.5mm (4.9mm)	2800(s) about 12300(n)	NO	2.0	○	○	△
Sample 16	YES	2.0mm (9.2mm)	1700(s) about 10200(n)	NO	2.3	○	○	△
Reference 11	NO	0.5mm (4.9mm)	——— ———	———	4.6	◎	△	△△
Reference 12	YES	0.05mm (1.5mm)	240(s) about 1000(n)	YES	2.1	○	×	×

Fig. 13

EXPERIMENT II (Cleaning Brush – Photosensitive Drum)

	Passive/Active Rotation Mode Switching	Amount of Push p [Nip width n]	Drum Drive Time(s) [Number of Rotation(n)] Before Forced Rotation of Brush		Voltage Application in Passive Rotation	Degree of Abrasion (μm)	Disorder of Brush Fiber	Image Uneveness	Over all Evaluation
Sample 21	YES	0.5mm (5.6mm)	840(s)	about 2900(n)	YES	1.2	◎	◎	◎
Sample 22	YES	0.06mm (2.0mm)	1680(s)	about 5400(n)	NO	1.9	○	○	△
Sample 23	YES	0.1mm (2.5mm)	1680(s)	about 5400(n)	NO	1.2	◎	◎	◎
Sample 24	YES	0.5mm (5.6mm)	1680(s)	about 5700(n)	NO	1.2	◎	◎	◎
Sample 25	YES	1.76mm (10.0mm)	1680(s)	about 6900(n)	NO	1.6	◎	◎	◎
Sample 26	YES	2.0mm (10.6mm)	1680(s)	about 7100(n)	NO	1.9	◎	○	○
Sample 27	YES	0.5mm (5.6mm)	4400(s)	about 14990(n)	NO	1.7	○	◎	○
Sample 28	YES	0.5mm (5.6mm)	5900(s)	about 20100(n)	NO	1.7	△	◎	△
Sample 29	YES	1.76mm (10.0mm)	3700(s)	about 15200(n)	NO	2.0	○	◎	○
Reference 21	NO	0.5mm (5.6mm)	———	———	———	5.2	◎	△	△△
Reference 22	YES	0.05mm (1.8mm)	1680(s)	about 5400(n)	NO	1.1	○	×	×
Reference 23	YES	2.5mm (11.6mm)	1680(s)	about 7800(n)	NO	2.7	○	×	×